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Notice of Allowability	Application No.	Applicant(s)	
	10/645,161	GEEN, JOHN A.	
	Examiner	Art Unit	
	Terry L. Englund	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amdt (Jun 13, 2005).
2. ☒ The allowed claim(s) is/are 21-28 (now renumbered as 1-8, respectively for printing purposes).
3. ☒ The drawings filed on 30 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
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 TIMOTHY P. CALLAHAN
 SUPERVISORY PATENT EXAMINER

Art Unit: 2816

DETAILED ACTION

Response to Amendment

The amendment submitted on Jun 9, 2005 (and received on Jun 13) was reviewed and considered with the following results:

The cancellation of claim 29 rendered its objection (i.e. being dependent on a rejected base claim) moot.

Amended claims 22-23, and 25-26 overcame their respective rejections under 35 U.S.C. 112 (as described in the previous Office Action) by better clarifying how the capacitive circuit, and/or various voltages, relates to each stage. Therefore, those rejections have been withdrawn.

Amended claim 21 overcame the rejections of claims 21-28 under 35 U.S.C. 103(a) with respect to Meng. Those rejections have also been withdrawn. The Meng reference does not show or disclose the control of the first/second switches within each stage as claim 21 now recites, wherein each stage is controlled by a switching frequency different than the other stages.

There is no known objection or rejection remaining within the present application.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

None of the prior art references reviewed and considered shows or discloses control of the stages, each with its own respective first/second switches, by different switching frequencies (i.e. "switches of each successive stage are controlled at approximately half the switching frequency of its immediately preceding stage") as now recited within claim 21, upon which claims 22-28 depend. Since there is no strong motivation to modify or combine any prior art

Art Unit: 2816

reference(s) to ensure this frequency related limitation is met, the claims are deemed patentably distinct over the prior art of record.

Claims 21-28 are allowed, and have been renumbered as claims 1-8, respectively for printing purposes. The renumbering takes into account the cancellation of claims 1-20, and 29.

Prior Art

The prior art reference on the accompanying PTO-892 is cited for interest and documentation purposes only. Sugasawa shows a charge pump (e.g. one known type of a voltage multiplier) in Fig. 3 that is controlled by different frequencies, wherein the frequency of CLK_i is half the frequency of CLK_(i-1) (e.g. see Figs. 4A-4D, and column 4, lines 58-60). However, only one clock frequency is supplied to charge pump 1 at a time (e.g. see Figs. 3 and 5), and the frequency is selected in response to the output voltage (e.g. see the abstract). Therefore, even if charge pump 1 comprises a plurality of series coupled stages (e.g. see 21,24 and 22,25 of Fig. 5) to increase the output voltage to a higher desired level, each stage would still be controlled by the same clock frequency that is selectively provided to charge pump 1.

Any comments considered necessary by the applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication, or previous communications, from the examiner should be directed to Terry L. Englund whose telephone number is (571) 272-1743. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

Art Unit: 2816

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (571) 272-1740.

The new central official fax number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Terry L. Englund

16 June 2005